



The State of New Hampshire
Department of Environmental Services

Michael P. Nolin
Commissioner



September 30, 2005

His Excellency, Governor John H. Lynch
State House
Concord, New Hampshire 03301

Subject: **2nd Triennial Report on NH's Capacity Development Program for Public Water Systems – June 2003 to July 2005**

Dear Governor Lynch:

We are submitting to you, pursuant to Section 1420 (c) of the 1996 Amendments to the Safe Drinking Water Act, the 2nd Triennial report on New Hampshire's Capacity Development Program for Public Water Systems.

This report summarizes the activities conducted over the past 3 years, to assist new and existing community and non-transient non-community (NTNC) public water systems to provide safe and reliable drinking water to their customers. The Capacity Development program includes technical, managerial and financial assistance components to ensure that these needs can be met.

NHDES and specifically the Water Supply Engineering Bureau (WSEB) have established a reputation for maintaining a strong and visible commitment to the public and to public water systems through a wide range of outreach activities year-round. This role is especially apparent in NH's Capacity Development program. Each staff member contributes daily to assist public water systems with technical, financial and managerial guidance, through site visits, sanitary surveys, attendance at board meetings, operator training, technical seminars, and daily telephone and website inquiries, among others.

As you will see from the attached report, our strategy for existing public water systems focuses mostly on assistance to very small (<500 persons) water systems. Small water systems comprise approximately 95% of the total number of PWS in New Hampshire and have the greatest need. They are generally managed by volunteer boards with limited waterworks experience, and cannot afford the time or financial commitment to attend traditional training classes and seminars.

At the close of FY05, we are tracking **61 existing** systems in our Capacity Development program, providing assistance on a variety of topics ranging from inadequate infrastructure and water quality issues to organizational / leadership and financial problems. Resolution of these issues often takes years of working with the individual communities to arrive at satisfactory, long-term solutions. Others may be resolved within the same reporting year. The attached **Figure** shows the locations of systems in the Capacity Development Program and the location of Capacity Training Workshops held over the past 3 years.

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Our strategy to ensure adequate capacity for **new** public water systems is also very successful, with multiple control points that verify their technical, managerial and financial viability prior to start up. For the next reporting period, we will improve coordination with our Technical Assistance providers, and add metrics to better track and report on progress. The Capacity Development Program is an effective program assuring new and existing systems have the wherewithal to supply safe and reliable drinking water that meets all applicable health standards.

Please feel free to contact me or Sarah Pillsbury at (603) 271-1168 should you have any questions or require additional information about this report or our Capacity Development Program.

Sincerely yours,

Original signed by,

Michael P. Nolin
Commissioner
New Hampshire Department of Environmental Services

Encl.

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES

**2ND TRIENNIAL REPORT TO THE GOVERNOR
AND USEPA ON
NEW HAMPSHIRE'S CAPACITY DEVELOPMENT
PROGRAM FOR PUBLIC WATER SYSTEMS**

July 2002 to June 2005



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SECTION I. INTRODUCTION AND BACKGROUND

A. WHAT IS CAPACITY DEVELOPMENT?

This report follows from the 1996 Amendments to the Safe Drinking Water Act (SDWA) Section 1420(c), which requires that states submit a report to the Governor every three years on the efficacy and progress toward improving the technical, managerial and financial (TMF) capacity of public water systems.

The Capacity Development Program was thus born as a state effort to help public water systems to improve their finances, management, infrastructure, and operations, so that they may provide safe drinking water that meets all pertinent health standards consistently, reliably, and cost-effectively. This program is especially targeted to assist “small” (less than 3,300 persons) and “very small” (less than 500 persons) water systems, as they comprise the vast majority nationwide and generally carry a higher financial burden per user and have more limited resources for compliance with the SDWA. In New Hampshire, 95 percent of our public water systems serve less than 500 persons.

The goal to maintain adequate TMF capacity may be considered synonymous to the goal of developing and maintaining *sustainable water infrastructure*. This is a common theme that characterizes many of the activities and programs conducted by the Water Supply Engineering Bureau (WSEB) of the New Hampshire Department of Environmental Services (DES). This report presents an overview of the WSEB’s efforts to assist small public water systems to comply with the SDWA for the period July 2002 to June 2005. The program is voluntary and tailored to each system’s preventive or corrective needs. These activities are organized into two categories: those implemented to ensure adequate capacity for new public water systems (Section II), and those to improve capacity for existing public water systems (Section III). Our plans to improve the program are included in Section IV.

B. PROFILE OF NEW HAMPSHIRE PUBLIC WATER SYSTEMS

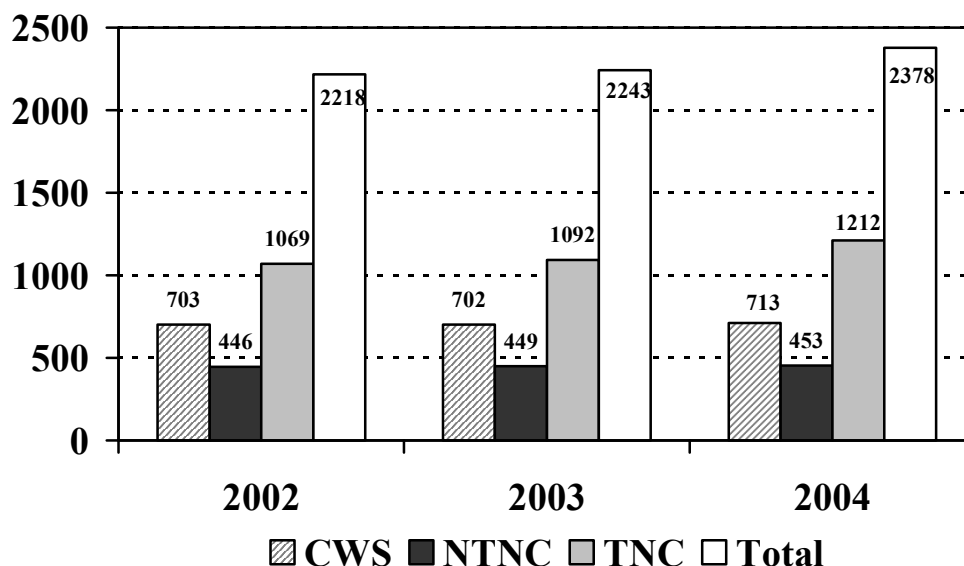
A public water system (PWS) is defined as any system serving water for human consumption to 25 or more persons, or through 15 or more service connections, for at least 60 days of the year. PWS are further classified as:

- **Community water systems (CWS)** serving year-round residential communities, such as municipalities, village districts, mobile home parks, condo associations, and nursing homes.
- **Non-transient / Non-community (NTNC)** water systems are those serving the same non-residential population for more than six months per year, such as schools, daycares and large businesses with more than 25 students or employees.
- **Transient / Non-community (TNC)** water systems are those serving at least 25 people, such as restaurants, motels, campgrounds, coffee shops and ski resorts.

DES has primacy authority to regulate public water systems in the state under both the federal and state Safe Drinking Water Acts. The state has approximately **2,378** PWS

(2004 data) that serve about **63 percent** (820,516 people) of the total state population. This represents an increase of 1.1 to 1.6 percent per year over the past three years (Figure 1). Of these, about **30 percent** are Community water systems, **20 percent** are Non-transient, non-community, and **50 percent** are Transient systems. Most of this growth has been due to the increase in transient systems. The remaining **37 percent** of residents obtain their water from **private** wells or other non-public water systems.

Figure 1 - Types of Public Water Systems in NH



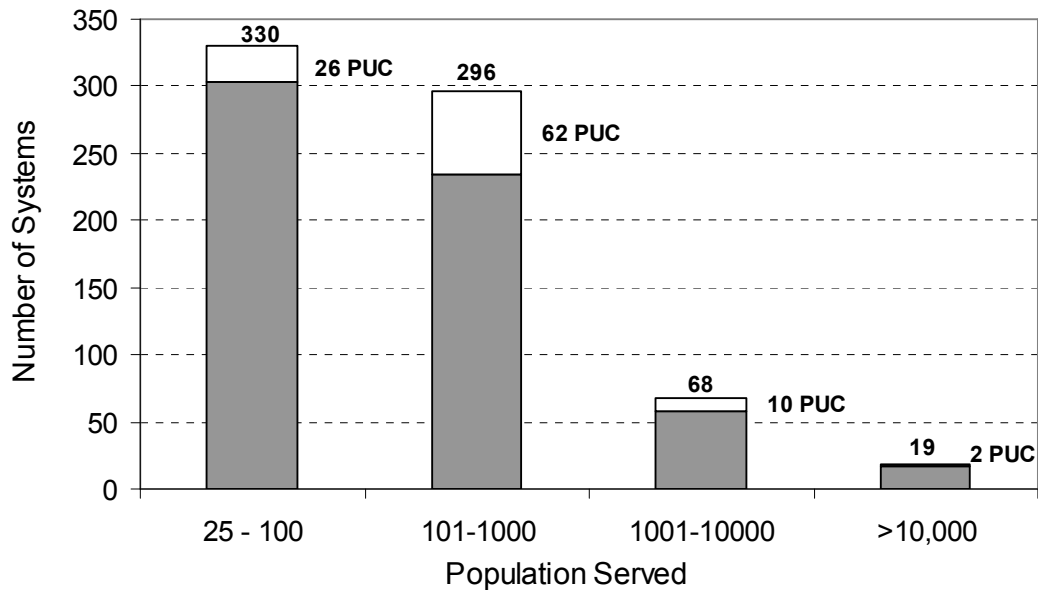
In addition, the New Hampshire Public Utilities Commission (PUC) oversees all investor-owned utilities in the state including approximately **14 percent** of community water systems (Table 1, 2004 data). The PUC reviews water rates, adequacy of services, assigns franchises, and sanctions acquisitions. Table 1 shows a decrease in the number of small (less than 1,000) PUC regulated systems over the past three years, due mostly to a number of interconnections and exemptions from PUC regulation.

Table 1 – Community PWS regulated by DES and PUC

Population Served	2001		2004		Percent Change		Comment
	PUC	Total	PUC	Total	PUC	Total	
25 – 100	33	335	26	330	-21%	-1%	No. of PUC systems decreased due to interconnections and exemptions from regulation.
101-1,000	65	264	62	296	-5%	12%	
1,001-10,000	8	69	10	68	25%	-1%	Growth from <1,000 category to >1,000 category.
>10,000	3	16	2	19	-33%	19%	Manchester exempted from PUC regulation in 2003.
Totals	109	684	100	713	-8%	+4%	

As shown in **Figure 2**, the vast majority (88 percent) of DES and DES-PUC regulated water systems serve less than 1,000 persons. These systems are also those most in need of assistance for compliance with the increasing regulations under the SDWA, due to their smaller revenue base, volunteer boards and/or operators, and lack of reserves for infrastructure maintenance.

Figure 2. Community Water Systems by Population Served



C. FEDERAL REQUIREMENTS FOR CAPACITY DEVELOPMENT

Under the 1996 Amendments, states must develop, implement, measure and report on their capacity development strategies and programs that ensure capacity for any new PWS formed after October 1, 1999, as well as for all existing PWS. States which *fail to comply* with these requirements are subject to **withholding of up to 20 percent** of the approximately \$8 million per year allotted to the state under the Drinking Water State Revolving Fund (DWSRF). To date, New Hampshire has maintained full compliance with these requirements such that no funds have been withheld.

Technically, the Capacity program applies only to Community and NTNC water systems and these have been the focus of our capacity assistance efforts to date. However, given the high number of transient systems in the state (over 50 percent), their history of compliance problems, and the efforts invested by WSEB staff in returning transient systems to compliance, additional outreach and training may be directed to this group as part of future capacity assistance efforts.

SECTION II. CAPACITY ASSURANCE FOR NEW SYSTEMS

A. REGULATORY AUTHORITY AND CONTROL POINTS

RSA 485 provides the general authority for implementation of New Hampshire's Safe Drinking Water Act. The Department of Environmental Services (DES) is the designated agency responsible for implementation. As a requirement of the SDWA, DES has established increasing levels of regulatory control to ensure that new and existing public water systems have the means to supply safe and reliable drinking water that meets all the pertinent health standards.

Administrative Rules pertaining to public water systems in New Hampshire are Env-Ws 300 to 394. Compliance with these regulations are an indicator that public water systems have achieved adequate capacity. Rules of particular importance in establishing regulatory control points for public water system capacity are described below.

1. Env-Ws 363, 371 - Capacity Development Rules

The Capacity rules added the requirement of a water system **Business Plan** to demonstrate managerial and financial capacity of new public water systems. These rules are applied together with the department's standard design review approval process (see below). The business plan can also be used to require better planning and organization for deficient existing water systems. The business plan targets compliance with the SDWA by:

- Identifying the proper staffing (ownership and certified operator).
- Identifying capital and operating costs for a five-year planning period.
- Identifying proposed water rates to meet the water system expenses.

A final business plan is required prior to issuance of the approval to operate / issuance of EPA ID number.

2. Env-Ws 372 - 377 Design Standards for Public Water Systems

The design approval process brings together all the individual requirements to ensure adequate technical, managerial and financial capacity for new drinking water systems in the state. Generally, the process includes the following control points:

- ***Concept Approval***, to justify the creation of the new water system as opposed to extension of an existing system, and the selection of the best feasible source of water supply available.
- ***Well Siting Report*** for approval of well yield and water quality.
- ***Business Plan Approval*** for demonstrating the managerial and financial capacity of new water systems.
- ***Design Plans and Specifications***, for approval of the design of new or modified pumping, treatment, storage and distribution facilities.
- ***O&M Manual, As Built Drawings, Emergency Plan***
- ***Final Inspection***
- ***Approval to Operate and EPA ID***

3. Env-Ws 378, 379, 387, 388 and 389 - New Source Approvals

Pursuant to the requirements contained in RSA 485 and 485-C, any entity developing a new source of water for a community water system, bottled water, or new groundwater withdrawal must obtain approval from DES. The objectives of these rules are to:

- Ensure that new sources provide an adequate quantity and quality of water.
- Ensure that new source withdrawals will not adversely impact existing water users or water resources.

Withdrawals that exceed 57,600 gallons over a 24-hour period are subject to the requirements of Env-Ws 379 Site Selection of Large Production Wells and to Env-Ws 390 Water Conservation Rules (see below).

4. Env-Ws 367 Operator Certification and Env-Ws 320-362 Monitoring, Reporting, Compliance, O&M and Public Notification Responsibilities

In 1979, New Hampshire legislature passed RSA 332:E to establish the Water Works Operator Certification Program along with a five member advisory/oversight committee. Administrative Rule Env-Ws 367 was later enacted to establish the requirements for the state's Operator Certification Program. New Hampshire's foresight and success from the past two decades of Operator Certification must be credited for the overall high technical and managerial capacity of our existing public water systems.

Federal guidelines for the "Certification and Recertification of Operators for Community and NTNC Public Water Systems" were issued in 1999. New Hampshire revised Env-Ws 367, effective in 2000, to fully comply with the EPA guidelines. EPA approved the revised state Operator Certification Program in 2001.

Certified operators and water system owners must comply with operation and maintenance responsibilities, monitoring, reporting, compliance and public notification responsibilities stipulated in a variety of administrative rules.

5. Env-Ws 360.15 Water System Emergency Plans

Env-Ws 360.15 was passed in March 2002, which requires all community systems to complete and submit an emergency plan every six years beginning in March 2003. Community systems approved after March 2003 are required to submit a plan as part of the final approval to operate (see Env-Ws 372 above). Failure to comply with this requirement is listed as a significant deficiency during a sanitary survey.

6. Env-Ws 352 Consumer Confidence Reports

New Hampshire's Consumer Confidence Rule (Env-Ws 352) was enacted in 2002 following the federal mandate for all existing and new community water systems to produce and distribute an annual Consumer Confidence Report (CCR) to its customers. The CCR is a public document designed to inform customers that their drinking water meets all applicable health standards of the SDWA, and if not, what health risks may result from parameters detected above the standard. In addition, the CCR requires the system to identify a number of non-regulatory issues including water sources, treatment,

and other background information. Failure to issue this report triggers a monitoring and reporting violation with the corresponding enforcement and assistance follow up.

In addition to the federally regulated drinking water parameters, New Hampshire requires that detections of the gasoline additive MTBE be reported on the CCR. New Hampshire adopted a health-based MTBE standard of 13 micrograms/L in 2000.

7. Env-Ws 390 Water Conservation Rules

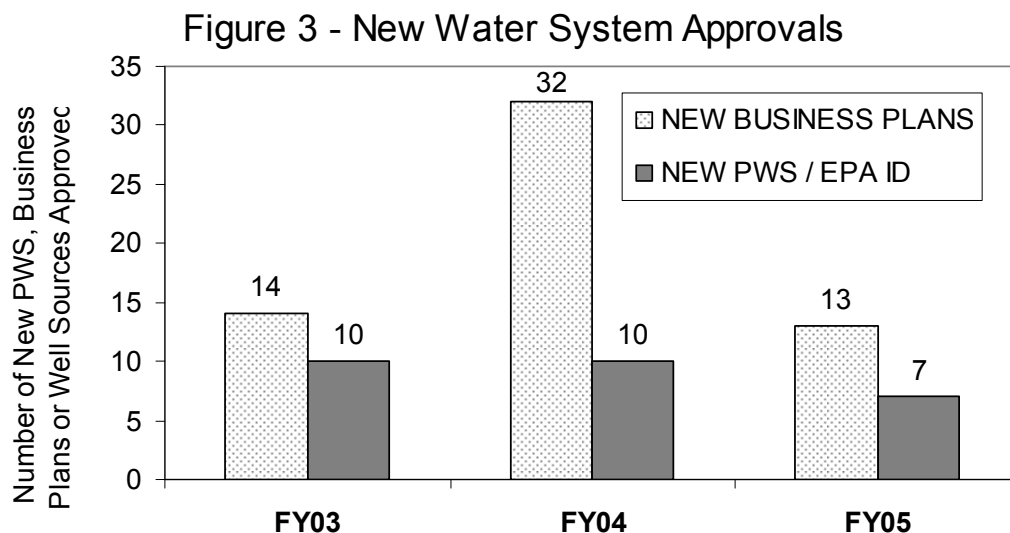
Applicants for permits to develop new sources of water for community water systems or for bulk or bottled water operations are subject to new water conservation requirements required by RSA 485.61 (enacted July 2002). The rules were formally adopted by DES in May 2005. *DES has also adopted a comprehensive educational outreach program to promote water conservation.* The rules also apply to existing large groundwater withdrawals (greater than 57,600 gallons over 24-hours) and to new sources of *surface* water associated with projects that require a water quality certification pursuant to Section 401 of the Federal Clean Water Act.

B. CAPACITY FOR NEW PUBLIC WATER SYSTEMS

1. New Water System Approvals

All new public water systems are required to comply with the applicable regulatory control points as detailed in the previous section. These include interim approvals such as new source approval, business plan review, and approval of design plans and specifications prior to the final approval to operate / EPA ID for a new public water system. DES staff work with the proposed system to gather all the information required to meet the requirements for approval. None of the systems approved over the pasts three reporting years have been listed on the Significant Non-Compliance list.

Figure 3 shows the number of new business plans and new PWS IDs approved between July 1, 2002 and June 30, 2005 (FY03 to FY05). New well source approvals are listed in the following section.



The new CWS and NTNC water systems approved in **FY2005** are listed below.

Table 2 - New PWS Approved July 2004 to June 2005

	Design #	EPA ID	Appr Date	Type	Project Name	Town
1	994215	0802040	10-May-05	CWS	FOREST RIDGE	EXETER
2	993119	0872010	27-Jul-04	CWS	GOVERNOR'S FOREST - PHASE I	FREMONT
3	993010	1582010	17-Aug-04	CWS	SHORTRIDGE ACADEMY I & II	MILTON
4	994107	0065020	13-Aug-04	NTNC	PROSPECT MOUNTAIN HS	ALTON
5	995080	0196310	10-Dec-04	NTNC	WALLACE ROAD PLAZA	BEDFORD
6	994137	0266240	19-Jul-04	NTNC	GRAPPONE HONDA	BOW
7	995075	2356110	7-Dec-04	NTNC	PSNH WORK CENTER	TILTON

2. New Well Sources

DES approved 106 new sources of water for community water systems over the past three years (see below). As part of the new source approval process, DES meets with applicants on-site to discuss the proposed project and provide permitting guidance, attends pump tests associated with the new source, and assesses if the water quality and quantity of a proposed new source will consistently meet drinking water standards and system source capacity requirements. DES must complete reviews and issue approvals on preliminary applications and final reports for each new source of water before it is connected to the community water system. All water systems developing new sources of water must implement source water protection programs that are approved by DES.

Table 3 - Community Water System New Well Sources July 2003 – June 2005

Location	Number of Wells	Location	Number of Wells
Alton	1	Laconia	2
Ashland	1	Lee	2
Atkinson	1	Londonderry	1
Barrington	7	Londonderry	1
Bartlett	3	Milton	1
Bow	5	Newmarket	1
Canaan	1	Newton	3
Carroll	1	Northfield	2
Chester	3	Northwood	1
Danville	1	Penacook-Boscawen	1
Deerfield	1	Plaistow	1
Dunbarton	3	Plaistow	1
East Kingston	3	Raymond	8
Exeter	2	Rindge	4
Fremont	5	Rochester	2
Gilford	3	Sandown	10
Hampstead	5	Stratham	2

Location	Number of Wells
Hampton	4
Haverhill	1
Hillsborough	1
Hollis	2
Kingstown	1

Location	Number of Wells
Tamworth	1
Thornton	2
Westmoreland	1
Windham	4
Total new wells	106

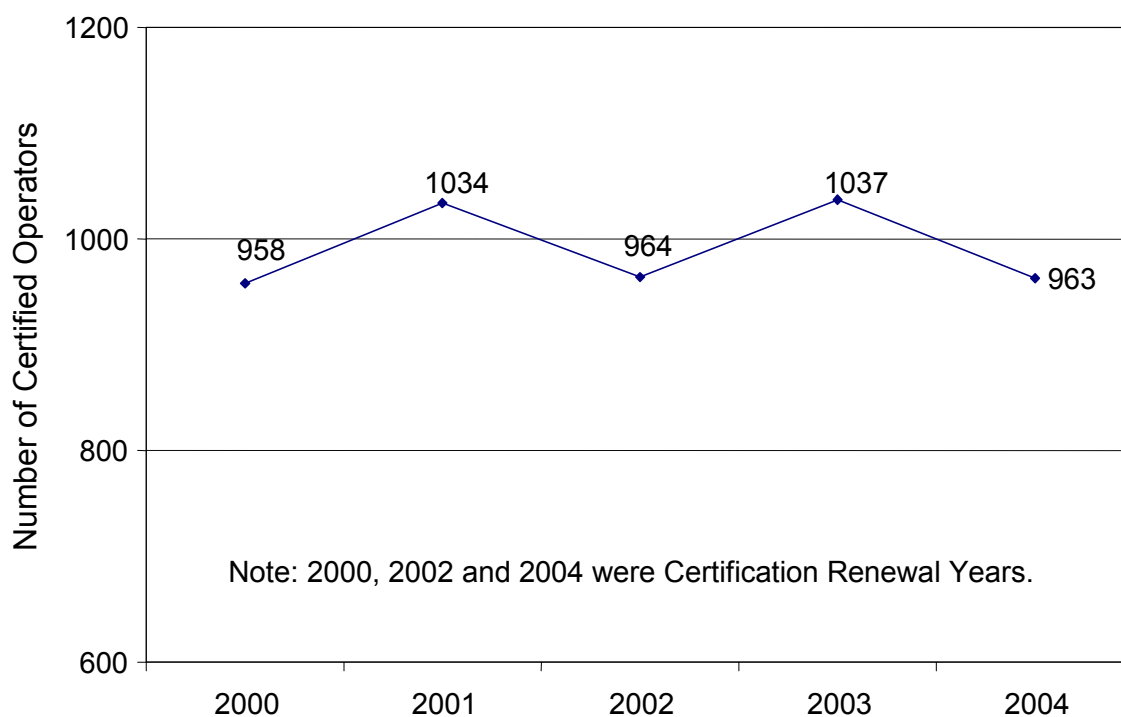
3. New Emergency Plans

Twenty three new water system emergency plans have been submitted since March 2003 (first submittal requirement). A letter was sent to each system following the review of their emergency plan which included suggestions for improvement.

4. New Certified Operators

All new community and NTNC systems must comply with the operator certification requirements in order to receive an approval to operate / EPA ID number. Currently, transient water systems are not required to have a certified operator. The total number of certified operators in the state varies dependent on the two-yr renewal cycle, but has generally been maintained between 950 – 1,040 operators over the past four years (see figure below).

Figure 4 - Certified Public Water System Operators in NH



SECTION III. CAPACITY ASSISTANCE FOR EXISTING SYSTEMS

A. PROGRAMS, TOOLS AND ACTIVITIES FOR EXISTING SYSTEMS

The WSEB assists PWS for compliance with the SDWA through multiple programs and activities which enhance technical, managerial and financial capacity. These range from source water protection and water conservation to operator training, general technical assistance, funding assistance, interconnection grants, monitoring waivers, guidance on new rules implementation, emergency plans and consumer confidence report assistance, among others. This assistance is provided through one-on-one contact from WSEB staff or its technical assistance subcontractors, year-round topic-specific outreach activities, cooperation with regional committees, local public officials, water works organizations, and the annual Drinking Water Tradeshow and Exposition. This section describes the main assistance programs and outreach activities carried out during this reporting period.

1. Drinking Water Source Protection Program

The Drinking Water Source Protection Program (DWSPP) assists public water systems in protecting their sources through grants, one-on-one technical assistance, training, technical guidance, publications, regulatory relief, and coordination with other regulatory programs. These activities complement the program's regulation of new community system groundwater sources, through which systems have been required to develop and implement source protection programs for new sources since 1993. Following is a summary of activities in each of these areas.

- **Source Water Protection Plans:** This initiative followed from the Source Water Assessments completed for all Community and NTNC systems in the state since Jan 2003, and consists of the implementation of basic source water protection measures for these systems. This program has been very successful with approximately 80 percent of community and NTNC systems implementing such measures as of the end of FY05, qualifying them for reduced chemical monitoring (see Regulatory Relief program below). Additional efforts are being directed toward implementing source water protection measures for the remaining 20 percent of water systems as part of the plans for the next reporting period.
- **Grant Programs for Source Water Protection / Security and Water Supply Lands:** The DWSPP provides grants of up to \$15,000 each (using DWSRF set-asides) for the planning and implementation of source water protection, including source water security. One-on-one technical assistance is provided to refine grant proposals, guidance and tracking of work progress under the grants. The DWSPP also provides state-funded grants for the protection of water supply watershed lands and wellhead protection areas. Since the inception of the program in 2000, the program has invested **\$3,754,754** of state funds, matched three-to-one by local funds and in-kind value, to protect a total of **3,364 acres**. Funding and re-staffing of the Water Supply Land Grant Program was provided in FY05 for matching funds for the protection of water supply lands.

- **Training:** The DWSPP holds an annual full-day training workshop for source water protection. The 2005 workshop was attended by 150 water suppliers, local officials, consultants and other interested participants. This attendance was twice that of previous years thanks to increased awareness and outreach activities. DWSPP staff also present sessions on source water protection topics at the annual Drinking Water Exposition (held in November), and at annual meetings of state planning and conservation officials.
- **Technical guidance:** The DWSPP publishes a quarterly newsletter on source water protection topics, which is distributed via email and hard copy to PWS operators and local officials. The program also maintains various guidance documents including model ordinances as well as approximately 30 fact sheets, which are available through the WSEB website at www.des.nh.gov/ws/htm.
- **Regulatory relief:** The DWSPP administers the Phase II/V chemical monitoring waiver program as an incentive to systems implementing local source water protection programs. The waiver reduces chemical monitoring costs by reducing annual sampling to every three years. As noted above, approximately 80 percent of community and NTNC systems have qualified for the chemical monitoring waiver by implementing at least basic source water protection measures.
- **Municipal Survey:** Initiated in 2005 and scheduled to be completed in 2006, this survey is being conducted with EPA funding and cooperation with the New Hampshire Office of Energy and Planning and the Ground Water Protection Council. The survey will serve to gather data regarding existing municipal ordinances and regulations that protect water supply sources.
- **Source Water Assessment and Protection Tracking Database (SWAP Track):** Expansion of this database has been ongoing since its creation in 2002 to include information regarding source water threats and existing protection measures. Questionnaires included with the Phase II/V waiver and renewal applications are one source of data input. Other data sources include DES's Geographic Information System and the WSEB database.
- **Cooperation with Towns and Regional Planning Commissions (RPCs):** DWSPP works with town officials and RPCs to promote the development of town-wide or region-wide groundwater protection programs. These efforts are intended to improve the effectiveness of existing de-centralized efforts and to provide some regional protection for those systems which have been reluctant to enter the program thus far. This encouragement is provided through direct outreach, consulting with New Hampshire Rural Water Association, and priority scoring under DES's Local Source Water Protection Grants. In 2005, the DWSPP also developed and distributed a flyer to promote the role of municipalities in source water protection.
- **Cooperation with other State Programs – UST and RCRA:** DWSPP staff coordinate efforts with other state programs such as underground storage tanks (UST) and RCRA compliance. The principal activities for this period were to

develop new outreach materials emphasizing UST siting and coordinate RCRA compliance along with source water protection efforts.

- **Rules Readoption:** DWSPP worked with water suppliers and affected communities over the past year to develop amendments to the rules protecting surface water sources. The revised rules are included in the new rules package anticipated to be adopted by December 2005.
- **Best Management Practices Training**
Public water systems and municipalities may enforce best management practice regulations (Env-Ws 421) developed by the DES to prevent the contamination of drinking water supplies. These regulations apply to any entities in New Hampshire that possess more than household quantities of hazardous materials or waste. DWSPP staff provide one-on-one training of water suppliers and local officials on how to conduct local inspection programs to ensure that potential contamination sources are in compliance with best management practice rules.

2. Water Conservation Program, Factsheets and Workshops

As a follow up to a 2001 study completed by DES and PUC on the “Regulatory Barriers to Water Supply Regional Cooperation and Conservation in New Hampshire,” DES worked with an advisory committee including representatives from municipalities, community water systems, environmental organizations, business and industry to develop the new Water Conservation Rules (Env-Ws 390), adopted in May 2005. In addition, a new web-page was launched in June 2005, which includes 17 water conservation factsheets and four local water conservation case studies. DES also conducted two water conservation workshops in November 2002 for businesses and industry.

Implementation of the new water conservation rules are expected to result in a 20-30 percent reduction in water use and to improve water system capacity by requiring better planning and accounting of water uses. These practices are summarized as follows:

- **For all large community water systems and all new small community water systems developing new sources of water:**
 - Install and maintain meters for all water withdrawals and service connections.
 - Implement a water audit, leak detection and leak repair program in accordance with the Manual of Water Supply Practices M36, Water Audits and Leak Detection (AWWA 1999).
 - When applicable, development and implementation of response plans to reduce unaccounted for water to less than 15 percent.
 - Implement a rate structure that encourages efficient water use.
 - Implement a water conservation educational outreach initiative.
- **For existing small community water systems developing new water sources:**
 - Install source and service connection meters and implement a water audit, leak detection and leak repair program in accordance with M36 – Manual for Water Audits and Leak Detection (AWWA 1999), or complete a system-wide leak detection once every two years.
 - Repair all leaks within 60 days of identification.

- Implement a water conservation educational outreach initiative.
- **For industrial, commercial or institutional applicants developing new sources of water (e.g., bulk and bottled water users):**
 - Install water meters for all water sources.
 - Retrofit or replace single pass water-cooling systems when feasible based upon an economic analysis that includes a four-year payback period.
 - Install controls to stop the overflow or discharge of water to waste, based upon an economic analysis that includes a four-yr payback period.
 - Identify water conservation best management practices or best available technologies that may be applicable to the types of water-using processes at the subject facility, and implement these measures when feasible based upon an economic analysis that includes a four-year payback period.
 - For all new lawn areas, install six inches of loam and devices to shut-off automatic irrigation systems when not needed.

3. Operator Certification / Contract Operators

Since 1980, New Hampshire has had a strong educational program to support initial operator training and continuing education for certified water operators. The program is well recognized and supported by the water works industry. DES works closely with new and delinquent PWS to bring them into compliance with the certified operator requirements. Multiple reminders are provided through phone calls, letters and notices. Sanitary surveyors address operator issues during regular site visits to encourage operator certification compliance. DES sponsors and conducts training for PWS operators and administers operator certification exams three times annually. This gives the owners or designated individuals from PWS ample opportunity to become certified.

DES also maintains a complete listing of contract operators supplying services in New Hampshire. Fact sheets are provided through the WSEB website on operator certification requirements and advice on hiring operators. While this friendly active approach proves highly effective, sometimes enforcement measures are necessary. In 2004, DES issued five Letters of Deficiency to systems out of compliance which the Operator Certification requirements.

4. Operator Expense Reimbursement Grant (ERG)

The Operator Expense Reimbursement Grant (ERG) was approved by EPA in late 2002. This program enhances the Operator Certification program by contributing funding to providers of continuing education courses that improve the technical capacity of New Hampshire water system operators.

5. Regional Water System Grants

Env-Ws 393 Public Water Supply Grants includes grants of up to 25 percent of project costs leading to interconnection of two or more PWS, including costs for planning, design and construction. Groundwater investigation and surface water filtration facilities (for compliance with the Surface Water Treatment Rule) are also included in this rule. Env-Ws 393 is included in the rules package due to be re-adopted by December 2005, to further clarify the Regional Water System Grant and Groundwater Investigation Grant

requirements and ranking criteria. The grant priority ranking includes population benefited, public health benefit, and impact on taxes and water rates. The first grants were awarded in FY03 and a second round of grants was awarded in FY05.

6. Regional Cooperation for the Management of Water Resources

In 2000, Senate Bill 2001 was passed into law, which required DES and the Public Utilities Commission to assess and identify regulatory barriers for water systems to conserve water or cooperate in the regional management of these resources. A number of recommendations resulted from the study completed by DES, PUC and an advisory committee of stakeholders (available through the DES and PUC websites), all of which have now been implemented as follows:

- **Grants for Emergency Interconnections and Water Supply Protection**

Senate Bill 437 (June 2002) and House Bill 738 (2003 legislative session) were enacted to promote the protection of public water supplies during emergency conditions, through the construction of emergency interconnections between large water suppliers for each region in the state. These laws established a grant program for assessing and constructing new emergency interconnections. Two large emergency interconnection studies have been completed to date, for the Seacoast and the southern regions.

- **Additional Security Restrictions**

SB 437 authorizes the governor to provide additional security restrictions to protect specific community water supplies from contamination when such measures are warranted to protect public health.

- **Authority to Require Emergency Interconnections**

SB 437 establishes state authority to require interconnections or an extension of water service to a community water system to mitigate water emergencies. DES can invoke this authority when a water supply emergency exists and 10 or more residents impacted by the emergency file a petition to DES requesting such an extension. DES can only require the extension if the water system proposed to provide water has sufficient capacity and it is the most feasible option for extending service.

- **Financial Incentive to Extend Water Services**

SB 437 authorizes municipalities to provide water to customers outside their political boundaries at rates up to a 15 percent premium without being subject to regulation by the Public Utilities Commission. Previously, extension of services by municipal water systems was effectively discouraged due to the increased accounting and requirements that would be applicable under PUC rules.

- **Cost Recovery for Source Water Protection and Regional Planning**

SB 437 encourages rate-regulated utilities to implement regional water supply planning studies and source water protection measures by allowing them to recover costs from these initiatives through water rates approved by the PUC. Prior to SB 437, community water suppliers subject to rate regulation were often hesitant to invest resources in planning or protection initiatives because it was uncertain if such initiatives could be recovered through rate making.

- **Additional Conservation Incentives**

DES worked with the PUC to adopt a docket that will offer rate-regulated water utilities opportunities to promote and implement water conservation without reducing their revenue stream.

7. DWSRF 2% Set-Asides – Technical Assistance Provider Contracts

DES issues an annual Request for Proposals for technical assistance (TA) services for small water systems in the state. Each year from 2000 to 2005, DES has contracted with two national non-profit TA providers, which have responded to this RFP: the New Hampshire Rural Water Association (NHRWA) and the RCAP Solutions Inc. These organizations provide services ranging from operations troubleshooting, income surveys, asset inventories and rate studies, assistance with RFPs for engineering services, and response to enforcement actions. These contracts ended September 30, 2005.

8. Consumer Confidence Report Assistance

- A series of seminars were given throughout the state in 2002 and 2003 on why and how to produce the CCR.
- A CCR webpage was created and launched in March 2003 to provide templates and links for water systems to produce their own report. A link is provided on the WSEB's Small Systems Help Center at www.des.state.nh.us/wseb/capacity/.
- One-on-one technical assistance is provided by WSEB staff and through TA providers RCAP and NHRWA.

9. Water System Emergency Response and VA Plan Assistance

- A water systems security website was developed to offer guidance documents, links to security and emergency planning information, training opportunities and contact information for assistance.
- Emergency plan guides and sample plans and other guidance documents were developed and made available online through the water security website.
- Workshops were held to assist systems with completing an emergency plan prior to the deadline of March 2003.
- Training has also been provided to assist water systems to complete water system vulnerability assessments (VA) as required by the Bioterrorism Act of 2002.
- A security hardware workshop was held in March 2005 to assist systems with choosing the appropriate security measures to implement.
- Source water protection/source water security grants have been made available since Jan 2000 to implement source water security measures (see also DWSP and Regional Cooperation Emergency grants). Emergency Mutual Aid Study Grants have been awarded to nine towns.
- Education and outreach regarding emergency planning and VA's were distributed through the website, newsletters, presentations at water works forums, mass e-mails, and direct mailings.
- A 24-hour notification rule was developed to require community and NTNC systems to report any emergencies or security breaches to DES within 24 hours.
- A laminated emergency notification card was developed and mailed to all CWS

- and NTNC systems to establish DES emergency contacts and response sequence.
- No trespassing signs were made available to systems for free.
- Community Emergency Planning/Water Security workshops were held, which brought together water systems and local first responders to conduct a tabletop exercise. WSEB staff also participate in communication drills with community water systems to promote emergency preparedness.

10. Capacity / Board Member Training Workshops

DES's Operator Training and Capacity Development program provided a series of free seminars on board member training between 2002 and 2005 (three per year). TA provider RCAP Solutions was contracted to conduct the mailing and phone invitations and to perform the actual training. The seminars focused on managerial and financial aspects of running a public water system. Attendance has been relatively low between five to 25 persons per seminar. The following locations and dates have been offered:

Table 4 – Schedule of Capacity / Board Member Training Workshops

Location	Workshop Date	Approximate # Attendees
Barrington	May 2002	12
Derry	March 2003	12
Wakefield/Sanbornville	May 2003	8
Canaan	Nov 2003	No registrants
Keene	Apr 2004	10
Groveton	June 2004	5
Conway	Nov 2004	25
Plaistow	June 2005	5
Gilford	Sept 2005	10
Hillsborough	Oct 2005	Anticipated

11. Outreach Activities / New Rules Implementation Guidance

- **Annual Drinking Water Tradeshow and Exposition** – The annual tradeshow is a one-day event held in November of each year and organized jointly between DES and the New Hampshire Water Works Association. Over 1,000 attendees include equipment vendors, consultants, water system operators and owners, municipal staff and regulators. Thirty one, one-hour technical sessions are offered throughout the day on topics of current interest, including new rules guidance, financing options, New Hampshire case studies, etc. Capacity assistance is a central theme of DES's presentations and exposition booth since topics are geared specifically to help small system Operators and Owners to comply with the SDWA.
- **Surface Water Workshop** (Fall 2004) - This workshop was organized by DES WSEB to inform PWS owners and operators relying on surface water sources (which serve approximately 40 percent of the state population) on the requirements of the new microbial - disinfection byproducts rules. Presentations were provided by WSEB staff, EPA Region 1, water superintendents, and contract laboratories specialized in *Cryptosporidium* monitoring services.

- **Arsenic Workshop** (March 2005) – This workshop convened water treatment vendors, consultants, small water system owners and operators to present options for compliance with the new Arsenic Rule standard to be enforced in Jan. 2006.

12. WSEB Publications

- **Small Water Systems Operations Manual** – Published in 2004 through contract with the New Hampshire Rural Water Association. This manual is the basis for the small systems operator training course for certification of small systems operators (grade CIA).
- **Handbook for Owners of Small Water Systems** – Published in 2004 through contract with RCAP Solutions, Inc. This manual is distributed to attendees of the financial and managerial capacity workshops and to new small community and NTNC systems at the final inspection prior to startup.
- **Supply Lines Newsletter** – Published quarterly in hardcopy and online through the WSEB website, this newsletter covers regulatory developments, case studies, operational issues, training opportunities and other items of interest to operators and system owners.
- **WSEB Fact sheets** – WSEB maintains over 180 fact sheets available through its website on general topics related to drinking water. Public access to the fact sheets site www.des.state.nh.us/ws.htm averages 3,000 hits per month (2004 web traffic analysis).

13. Small Water Systems Help Center

Launched in May 2002 and updated in 2003, the Small Systems Help Center at www.des.state.nh.us/wseb/capacity/, provides information and links to information and tools to assist small public water systems. The Small Systems Help Center is the second most visited webpage for the WSEB website, with an average of 150 hits/month. Links are provided to the following:

- Capacity fact sheets including financial, managerial and technical guidance.
- Capacity Rules for New and Existing Water Systems (Env-Ws 363 and 371).
- Forms and templates for capacity development requirements, including business plan and PWS self-assessment forms.
- Financial assistance programs and contact information.
- Owner responsibilities.
- Operator training schedule.
- SDWA regulations.
- New rules guidance – Arsenic, Radionuclides, Radon.
- Technical assistance providers and contact information.

14. OneStop Data Retrieval for PWS

The OneStop Data Retrieval website www.des.state.nh.us/onestop.htm, provides information on a variety of environmental programs administered by DES. Information includes public water systems, licensed well contractors, and private wells drilled from

1984 to the present. The PWS query provides general information on any PWS in the state including contact information, population served, master sampling schedule and sampling results (if samples are submitted to the State Laboratory), and lead and copper compliance status.

15. Enforcement

WSEB implements increasing levels of enforcement to bring out-of-compliance systems back into compliance. The majority of drinking water violations are corrected based on an initial notice of violation letter and assistance from WSEB staff. However, stricter enforcement has been implemented especially for recalcitrant or significant non compliance (SNC) systems, wherein both the enforcement and the capacity development programs work hand-in-hand, often over an extended period of time, to assist the water system to address the causes of the violation.

The following enforcement tools are used:

- a) **Notice of Violation (NOV)** – An initial violation of a health standard (MCL) or monitoring and reporting violation triggers a notice of violation (NOV) letter. The NOV confirms the violation in writing and specifies additional actions including public notice and/or additional sampling requirements.
- b) **Letter of Deficiency (LOD)** – Following a second violation of the same regulation within an 18-month period, a letter of deficiency (LOD) is issued. The LOD letter is sent by certified mail, identifies the continuing violation, and recommends a timetable for system representatives to comply with actions to correct the deficiency. An LOD is not enforceable in and of itself; however, LODs issued for MCL and serious infrastructure deficiencies recommend that the system contract (within 30 days) the services of a qualified consultant, to evaluate and recommend the most cost-effective option to correct the violation. The consultant report must be presented within 90 days after which a suitable timetable for corrective action is negotiated depending on the upgrades required.
- c) **Administrative Order (Order)** – Systems that refuse to take correction action after repeated NOV and LOD communications are issued an Administrative Order. An order is a legally enforceable document that requires specific actions to be undertaken by set deadlines. If the water system is privately owned, the order is recorded with the appropriate Registry of Deeds to alert potential buyers and financial institutions of the water system deficiencies.
- d) **Notice of Proposed Fine and Hearing** – Failure to comply with an order will result in the issuance of Notice of Proposed Fine by DES.
- e) **Attorney General** – Referral to the New Hampshire Attorney General’s Office for appropriate civil and or criminal penalties is used as the final, last resort tool for systems out of compliance.

B. METHODS TO IDENTIFY AND PRIORITIZE EXISTING SYSTEMS

1. Prioritization / Ranking

Since June 2005, WSEB began use of a general rating system to prioritize existing water systems in need of capacity development assistance, as follows:

Table 5 – Capacity Needs Priority Rating for Existing Systems

Rating	Description
A	High priority, MCL violations or other enforcement tracking. Multiple active contacts through different WSEB programs (enforcement, TA assistance, funding assistance).
B	Medium priority, continued contact to identify and begin resolution of non – health related but significant deficiencies.
C	Low priority but continued watch, most immediate assistance already provided and system beginning to respond on its own.

2. Lead Contact / Work Plan Coordination

In order to improve tracking of capacity assistance efforts and to achieve more aggressive staff assistance, the WSEB has initiated the development of system-specific work plans. The work plan consists of a one or two-page road map which identifies the major problems with the PWS, main contacts, proposed solutions, and specific followup actions proposed to reach those solutions. A lead contact is identified within the WSEB whom historically has had intimate knowledge of the PWS issues. The lead contact relies also on the capacity assistance coordinator and other staff within the bureau, but provides oversight of assistance activities to assure these are consistent with the system needs and the capacity development goals. Assistance activities will be tracked through the WSEB database including site visits, correspondence tracking, PWS violations, and sanitary survey deficiencies.

3. Identification of Capacity Assistance Candidates

Programs currently in existence to identify capacity assistance candidates are as follows:

- **Sanitary Surveys**

Per federal requirements, sanitary surveys are conducted every three years for CWS and every five years for NTNC water systems. Surveyors note minor and significant deficiencies during the surveys and can list “CAP” as a minor deficiency if the system would benefit from financial, managerial or technical capacity assistance. This coding was established since 2003 and was used sporadically in 2004 surveys for small public water systems (serving less than 1,000 people). This tool will be re-activated in FY06 to improve followup for systems in need of assistance.

- **Source Water Assessments**

The Drinking Water Source Protection Program used the results of the system-specific source water assessments, completed in January 2003, to develop a SWAP follow-up plan. The plan comprises 12 tasks which target various groups of community and NTNC systems for source protection follow-up on the basis of SWAP results, chemical monitoring waiver status, and system size. (See following section on implementation progress).

- **Compliance Record / SNC list**

WSEB’s enforcement group works together with the engineering staff to address

problems causing water systems to incur SDWA violations. Systems incurring multiple violations and in consecutive quarters are tagged by EPA as significant non-compliance (SNC) systems and are automatically followed upon both by the enforcement and capacity assistance programs. Historical SNC systems are those remaining on the SNC list for three quarters in a three-year period.

Water systems on these lists are automatically ranked as highest priority (A) on the capacity program tracking list.

- **Technical Assistance (TA) referrals**

Systems in need of assistance may be identified through other visits provided by technical assistance providers NHRWA and RCAP Solutions working in the state. TA providers inform the troubled water system of the different types of assistance available, contact information (e.g. for funding resources or WSEB staff), and generally provide followup both independently and in conjunction with WSEB staff.

- **Direct requests**

WSEB staff receive dozens of telephone and email inquiries each day from PWS and concerned individuals on a variety of assistance topics, including source water protection, grant and loan programs, guidance on new regulations, sampling and enforcement issues, etc. This route of contact is encouraged and widely used thanks to WSEB's fostering an image of partners in compliance rather than of hostile legal enforcers. Our experience is that the direct contact/assistance route coupled with enforcement is more effective than strict legal enforcement in returning systems back into compliance.

- **PWS Capacity Assessment Form**

The capacity assessment form is a self-assessment questionnaire in use since 2002. It is used by existing systems to identify specific areas where they may need assistance, as well as to assess water system capacity for applicants to the DWSRF program. Deficiency ratings above 25 points as determined by this form triggers follow up through the capacity development program, including preparation and submittal of a water system business plan.

C. IMPLEMENTATION PROGRESS

1. Source Water Protection Program

- **SWPP Plan Assistance**

In addition to the system-specific source water assessments completed in January 2003, WSEB staff have provided technical assistance to the following public water systems and towns:

- Belmont/Northfield/Tilton – Best management practices guidebook (through the Lakes Regional Planning Commission)
- Dover – Reclassification application of drinking water supply wells
- Exeter – Source water assessment follow-up
- Franklin – Source water assessment follow-up

- Haverhill – Aquifer protection and source water protection
- Hooksett – Wellhead protection program
- Jaffrey – Source water assessment follow-up
- Keene – Source water assessment follow-up
- Mason/Brookline/Hollis – Bi-state source water protection project (through Nashua River Watershed Association)
- Merrimack/Pennichuck Water Works – Best management practices implementation (stormwater)
- Milford – Source water assessment follow-up
- Nashua/Pennichuck Water Works – Surface water source water quality monitoring plan
- New Hampton Water Precinct – Surface source water protection
- Pembroke – Source water assessment follow-up
- Rindge – Technical assistance on local groundwater protections

• **12-Point SWAP Follow-up Plan**

The following table summarizes the status of the 12-point Source Water Assessment Program (SWAP) Follow-up Plan:

Table 6 – Status of 12-point SWAP Follow-up Plan

Task	Description	Status
1	Consumer Confidence Report (CCR) Integration	Completed
2	Regional Planning Commission (RPC) Source Water Protection (SWP) Training for Planners	Ongoing
3	Evaluation of the effectiveness of the newsletter <i>The Source</i>	Ongoing
4	Direct contact with 98 systems that do not have waivers and have potential contamination sources (PCSs) in their wellhead protection area (WHPA).	Ongoing
5	Contact (94) systems without waivers and without PCSs initially by mail and secondary through phone calls.	Completed
6	Design and production of colorful source protection flier for distribution with waiver renewal letters.	Mailing Ongoing
7	Identify a subset of systems with multiple source assessment issues that have waivers and contact them with specific recommendations.	On Hold
8	Identify systems with sanitary radius issues and then provide them with information on how to apply for grants to resolve these issues.	Completed
9	Identify and approach towns with multiple sources and issues	Ongoing
10	Focused assistance to a small number of motivated systems	Ongoing
11	Series of eight articles in <i>The Source</i> newsletter	Completed
12	Call large systems with a population greater than 3500	Ongoing

• **Best Management Practices Training**

Since July 2002, DES provided in the field training to 15 water systems and municipalities listed below for the implementation of best management practices to prevent the contamination of drinking water supplies.

- Town of Concord
- Town of Salem
- Town of Hudson
- Town of Jaffrey
- City of Laconia
- City of Manchester
- Meriden Village Water District
- Town of Newmarket
- Town of Windham
- Town of Northumberland
- Berlin Water Works
- Town of Farmington
- Tilton Northfield Aqueduct Company, Inc.
- Town of Enfield
- Rosebrook Water Company

2. Capacity Program Tracking

The number of existing systems in the capacity development program has generally increased since the program inception in the late 1990s, with a major push to identify systems in need of assistance in 2003 (**Figure 5**). A total of 60 community and one NTNC water systems are being tracked as of the end of FY05 (**Figure 6**). Though it is not to WSEB's advantage to have a high number of systems in the program, many of the systems present complex organizational, technical and financial problems, which require years of hand-holding to fully address the issues and arrive at long-term solutions. This is further evidenced by the number of systems exiting the program each year (**Figures 7**).

Figure 5 - PWS Entering the Capacity Program by Year

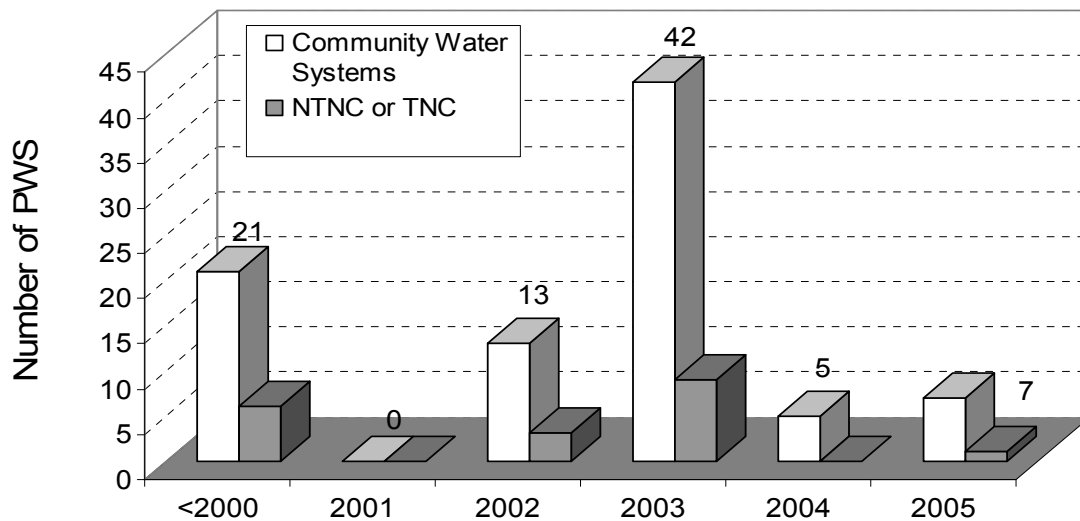


Figure 6 - Cumulative Number of PWS in Capacity Program

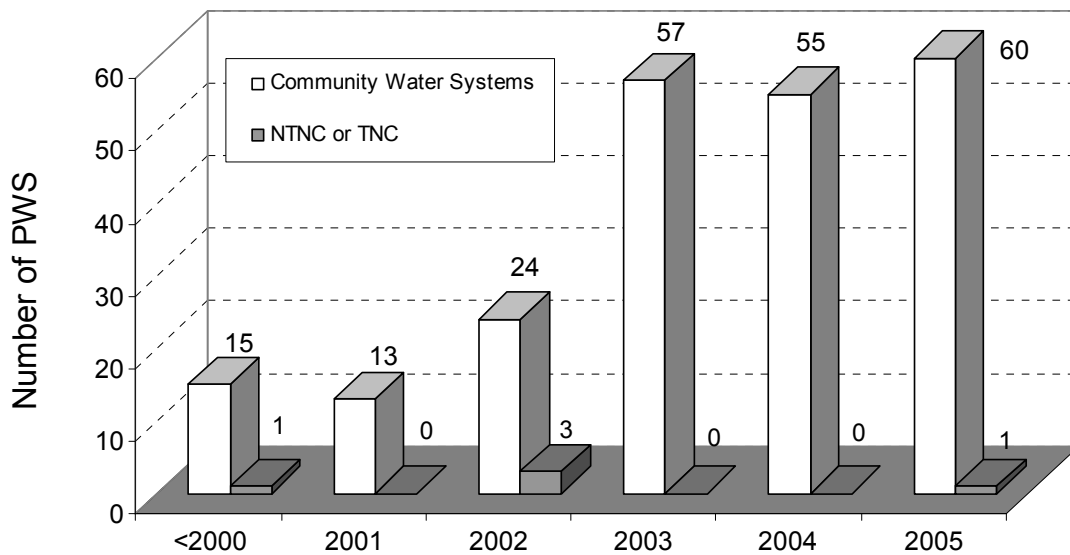
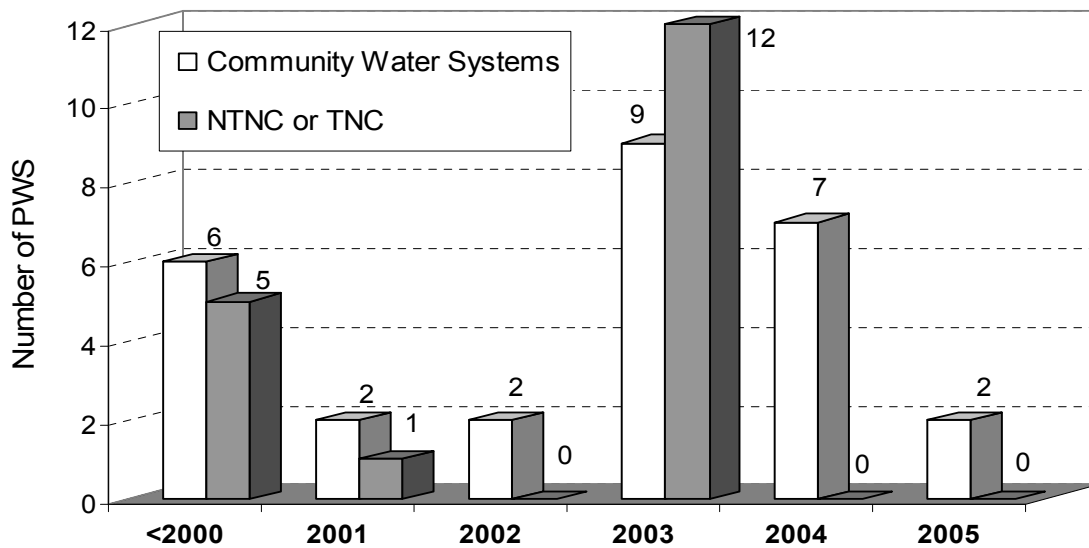


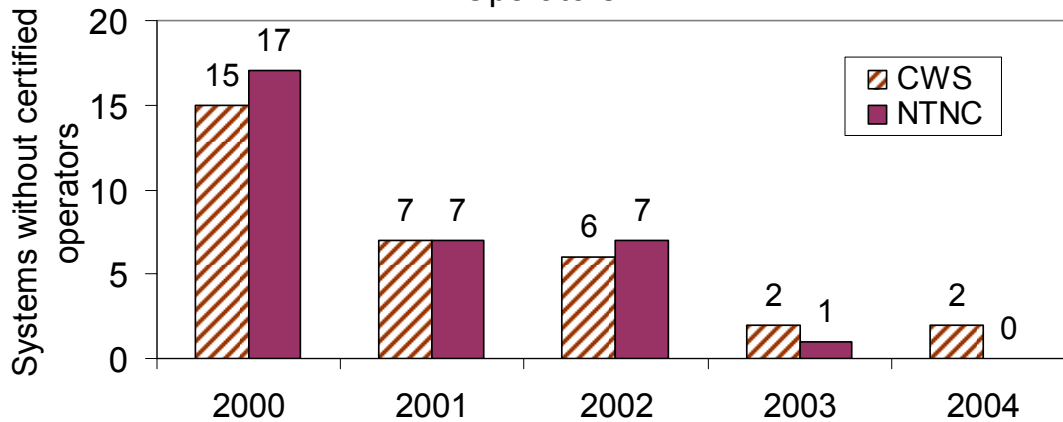
Figure 7 - PWS Completing the Capacity Program



3. Operator Certification report

The number of PWS without certified operators in New Hampshire on December 31, 2004 hit a historical low with only two community water systems in non-compliance (see below). This record is testimony to the effectiveness and maturity of our certification program which has been ongoing since 1980, and was one of the first to be implemented well before the federal guidelines were issued.

Figure 8 - Number of Systems Without Certified Operators

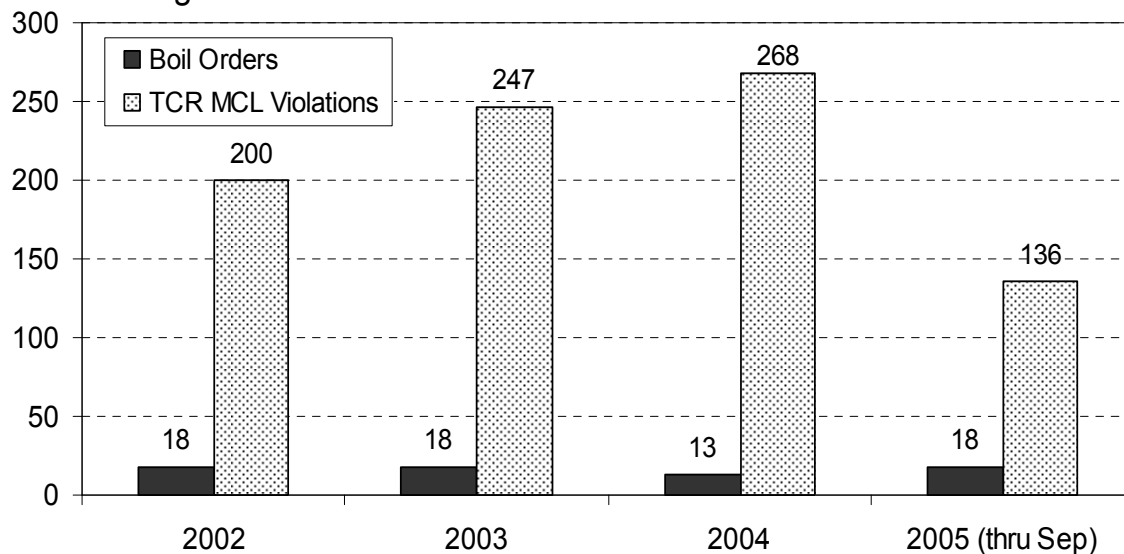


4. TCR violations / Boil Orders

The number of MCL violations reported for the total coliform rule (bacteria) monitoring may be used as an indirect measure of the technical capacity of public water systems. Systems that exceed the monthly number of allowable samples containing bacteria are issued a maximum contaminant level (MCL) violation.

New Hampshire's policy is to immediately issue a boil order in response to a positive fecal or *E.coli* detection. This approach is stricter than most other states, but has been upheld over the years in order to minimize public health exposure and risks. A review of the number of MCL violations and boil orders over the previous three years is shown below. Tracking of these violations will be included for evaluation of the effectiveness of some of the capacity development strategies for the next reporting period.

Figure 9 - Number of Boil Orders and TCR MCL Violations



5. Consumer Confidence Reports

Compliance by community water systems has been 100 percent for the years 2002, 2003 and 2004. This perfect compliance record has been achieved thanks to a number of outreach activities provided by the WSEB staff each year, including seminars, CCR templates, technical assistance, direct calling and enforcement actions (see previous section on assistance to existing systems).

SECTION IV. ASSESSMENT AND PLANS FOR NEXT PERIOD

A. Drinking Water Source Protection Program

The main goal of the DWSPP for the following reporting period is to increase the percentage of community and NTNC sources with “initial implementation” and “substantial implementation” of source water protection programs. Approximately 80 percent of community and NTNC systems are not at the initial implementation stage. The following strategies are planned to accomplish this goal:

- Improve data gathering regarding existing local actions that protect PWS sources in order to identify gaps and better direct program activities. The DWSPP is conducting a demonstration project with the Ground Water Protection Council toward this end.
- Continue to work with other technical assistance providers to target activities in areas where multiple systems will benefit and municipalities and/or systems are motivated to improve source protection.
- Improve coordination with regional planning commissions, to pursue municipal or regional “umbrella” projects benefiting multiple systems.

B. Capacity Development Program

No major changes are proposed to the existing strategies, however, in the interest of continued improvement, New Hampshire will continue to evaluate the efficacy of its capacity development program. Actions identified at this time are described below:

- Review and readopt the capacity development rules Env-Ws 363 and 371.
- Develop system-specific work plans for each capacity assistance candidate.
- Review work plan progress once per month as part of WSEB staff meetings.
- Request and review quarterly activity logs from TA providers. RCAP Solutions performs internal quarterly reports and began providing copies to DES as of September 2005.
- Review use of SRF set-asides for TA contracts for FY07, including, scope of work, deliverables, coordination/overlap with other programs within DES.
- Increase capacity awareness through additional outreach activities including Annual Drinking Water Tradeshow (November each year), new rule seminars, NHWWA forums, etc. WSEB’s exposition booth for the November 2005 Tradeshow will be entitled Capacity Assistance. In addition, technical sessions are scheduled in the same tradeshow to provide assistance to small water systems for compliance with the new arsenic and radionuclides rules.
- Improve tracking of capacity assistance through the WSEB database, including reactivation of the “CAP” site deficiency code, logging of site visits and capacity related correspondence.
- Continuation of existing tools and outreach activities.
- Increase training and assistance to Transient water systems with the goal of improving bacteria monitoring and control for these systems (see also operator certification and enforcement plans below).
- Work with regional planning commissions alongside the DWSPP to promote

physical and/or managerial regionalization for troubled small public water systems, through sharing of emergency preparedness resources, contract operators, or other cost-saving measures.

C. Operator Certification Program

The New Hampshire Operator Certification Advisory Committee reviewed the operator certification program during 2004. No significant issues were identified and no statutory, regulatory, or program resource changes were made or are foreseen in the near future. The program is constantly evaluated by DES staff to assure that it is properly funded and serving the public, public water systems, and operators as necessary.

Plans for the next reporting period are as follows:

- Training – continuation of current training for community and NTNC operators and board members.
- Transient PWS – increased outreach / training activities for transient PWS operators with the goal of reducing bacteria monitoring violations.
- Contract Operators – update fact sheet on contract operators offering services in New Hampshire and guidance for hiring.

D. Consumer Confidence Reports

The perfect compliance record for CCR submittals shows that no major changes are necessary for this program. Plans for the following reporting period are as follows:

- Update CCR templates for FY2006.
- Increase TA assistance with goal of improving quality of CCR production.
- Perform workshops for water systems to facilitate CCR preparation.
- Encourage electronic CCR submittals to DES with goal of posting CCRs on the OneStop data retrieval website.

E. Enforcement and Capacity

Bacteria monitoring and reporting violations by small (less than 1,000 persons) water systems require a significant time commitment from the WSEB Enforcement Section staff. The presence of fecal or *E. coli* bacteria in drinking water poses an immediate threat to public health. Therefore, the main goal for the next reporting period is to increase our response efforts to these violations to minimize the public health risks and improve technical assistance followup to reduce the number of violations.

Our existing procedure calls for immediate issuance of a boil order whenever WSEB staff are notified of a positive fecal or *E. coli* sample detected in the PWS sample. Although WSEB's technical staff has always contacted water system representatives as soon as possible after a boil order is imposed, the new policy effective September 2005 requires an inspector to conduct a site visit within 24 hours or by the following business day. The site visit is intended to help determine the cause of the contamination and to provide guidance to system representatives on protecting the health of consumers until the contamination issue is resolved.